CLAIMS

1. A compound of formula (I):

$$\begin{array}{c|c}
R^{6}S(O)_{n} & R^{1} \\
R^{7} & N & N \\
R^{2} & W \\
R^{3} & (I)
\end{array}$$

wherein:

R¹ is (C₁-C₆)-haloalkyl, CN, NO₂ or halogen;

R² is H, halogen or CH₃;

 R^3 is (C_1-C_3) -haloalkyl, (C_1-C_3) -haloalkoxy or $S(O)_p$ - (C_1-C_3) -haloalkyl;

W is N or C-R4;

R4 is halogen or CH3;

A is (C2-C6)-alkylene or (C2-C6)-haloalkylene;

or is (C_3-C_6) -alkylene in which a carbon in the chain is replaced by O, S, SO, SO₂ or NR⁸ with the proviso that the replacing group is not bonded to the adjacent R⁵ or carbonyl group; or is

(C2-C6)-alkenylene or (C2-C6)-haloalkenylene; or is

-[(C_1 - C_3)-alkyl]_r-aryl-[(C_1 - C_3)-alkyl]_s-, or -[(C_1 - C_3)-alkyl]_r-heterocyclyl-[(C_1 - C_3)-alkyl]_s-, or -[(C_1 - C_3)-alkyl]_r-(C_3 - C_6)-cycloalkyl-[(C_1 - C_3)-alkyl]_s- or

-[(C_1 - C_3)-alkyl]_r-(C_5 - C_6)-cycloalkenyl-[(C_1 - C_3)-alkyl]_s-, in which last four mentioned groups the aryl, heterocyclyl, cycloalkyl and cycloalkenyl are unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1 - C_6)-alkyl, (C_1 - C_6)-haloalkyl, (C_1 - C_6)-alkoxy, (C_1 - C_6)-haloalkoxy, OR¹¹, CN, NO₂, S(O)_pR¹⁰, COR¹⁰, COOR¹⁰, CONR⁹R¹⁰, SO₂NR⁹R¹⁰, NR⁹R¹⁰, OH, SO₃H and (C_1 - C_6)-alkylideneimino;

 R^5 is $CONR^9R^{10}$ or CO_2R^{10} when m is 0 or 1; or R^5 is NR^9R^{17} when m is 1; R^6 is (C_1-C_3) -alkyl or (C_1-C_3) -haloalkyl;

 R^7 is H, (C2-C6)-alkenyl, (C2-C6)-haloalkenyl, (C2-C6)-alkynyl, (C2-C6)-haloalkynyl, (C3-C7)-cycloalkyl, COR^{11} , COR^{12} , COR^{13} , $\mathsf{-CO}_2\text{-}(\mathsf{C}_1\text{-}\mathsf{C}_6)$ -alkyl, $\mathsf{-CO}_2\text{-}(\mathsf{CH}_2)_q\mathsf{R}^{11}$, $\mathsf{-CO}_2\text{-}(\mathsf{CH}_2)_q\mathsf{R}^{13}$, $\mathsf{-CO}_2\text{-}(\mathsf{C}_3\text{-}\mathsf{C}_7)$ -cycloalkyl, $\mathsf{-CO}_2\text{-}(\mathsf{C}_1\text{-}\mathsf{C}_6)$ -alkyl-(C3-C7)-cycloalkyl, $\mathsf{CO}_2\text{-}(\mathsf{C}_2\text{-}\mathsf{C}_6)$ -alkenyl, $\mathsf{-CH}_2\mathsf{R}^{11}$ or $\mathsf{CH}_2\mathsf{R}^{13}$; or (C1-C6)-alkyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C1-C6)-alkoxy, (C1-C6)-haloalkoxy, (C3-C7)-cycloalkyl, $\mathsf{S(O)}_p\mathsf{R}^{14}$, $\mathsf{CO}_2\text{-}(\mathsf{C}_1\text{-}\mathsf{C}_6)$ -alkyl, $\mathsf{-O(C=O)}$ -(C1-C6)-alkyl, $\mathsf{NR}^9\mathsf{R}^{10}$, $\mathsf{CONR}^9\mathsf{R}^{10}$, $\mathsf{SO}_2\mathsf{NR}^9\mathsf{R}^{10}$, OH , CN , NO_2 , OR^{11} , OR^{13} , $\mathsf{NR}^{10}\mathsf{COR}^9$, $\mathsf{NR}^{10}\mathsf{SO}_2\mathsf{R}^{14}$ and COR^{12} ;

 R^8 is R^9 , $CO-R^9$, $CO-R^{11}$, CO_2R^{12} or $CO-(C_1-C_6)$ -alkyl substituted by amino; R^9 is H, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl, (C_2-C_6) -alkenyl, (C_2-C_6) -haloalkynyl, (C_3-C_7) -cycloalkyl or $-(C_1-C_6)$ -alkyl- (C_3-C_7) -cycloalkyl;

 R^{10} is R^9 , $-[(C_1-C_6)-alkyl]_q-R^{11}$, $(C_1-C_3)-alkoxy-(C_1-C_3)-alkyl-$,

 (C_1-C_3) -alkoxy- (C_1-C_3) -alkoxy- (C_1-C_3) -alkyl- or (C_1-C_3) -alkyl-S $(O)_p$ - (C_1-C_3) -alkyl-; or R^9 and R^{10} or R^9 and R^{17} each together with the respective attached N atom form a four- to seven-membered saturated ring which optionally contains an additional hetero atom in the ring which is selected from O, S and N, the ring being unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl and CO_2 - (C_1-C_6) -alkyl; R^{11} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl, (C_1-C_6) -alkoxy, (C_1-C_6) -haloalkoxy, OR^{16} , CN, NO_2 , $S(O)_pR^{12}$, COR^9 , COOH, $COOR^{12}$, $CONR^9R^{15}$, $SO_2NR^9R^{15}$, NR^9R^{15} , OH, SO_3H and (C_1-C_6) -alkylideneimino;

 R^{12} is (C_1-C_6) -alkyl or (C_1-C_6) -haloalkyl;

 R^{13} is heterocyclyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_4) -alkyl, (C_1-C_4) -haloalkyl, (C_1-C_4) -alkoxy, $S(O)_DR^{12}$, OH and oxo;

 R^{14} is (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl, (C_3-C_7) -cycloalkyl or $-(C_1-C_6)$ -alkyl- (C_3-C_7) -cycloalkyl;

 R^{15} is H, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl, (C_3-C_7) -cycloalkyl or $-(C_1-C_6)$ -alkyl- (C_3-C_7) -cycloalkyl;

R¹⁶ is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C₁-C₆)-alkyl, (C₁-C₆)-haloalkyl, (C₁-C₆)-alkoxy, (C₁-C₆)-haloalkoxy, CN, NO₂, S(O)_pR¹², COR¹⁵, COOH, COOR¹², CONR⁹R¹⁵, SO₂NR⁹R¹⁵, NR⁹R¹⁵ and OH;

 R^{17} is R^{10} , $CO_2(C_1-C_6)$ -alkyl, $-CH_2CO_2(C_1-C_6)$ -alkyl, $CO_2CH_2R^{18}$ or $CO(C_1-C_6)$ -alkyl; R^{18} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl and (C_1-C_6) -alkoxy; n and p are each independently 0, 1 or 2;

m and q are each independently 0 or 1;

r and s are each independently 0 or 1; and

each heterocyclyl in the above-mentioned radicals is independently a heterocyclic radical having 3 to 7 ring atoms and 1, 2 or 3 hetero atoms in the ring selected from the group consisting of N, O and S;

or a pesticidally acceptable salt thereof.

- 2. A compound or a salt thereof as claimed in claim 1 wherein: $R^{10} \text{ is } R^9, -[(C_1\text{-}C_6)\text{-alkyl}]_q\text{-}R^{11}, (C_1\text{-}C_3)\text{-alkoxy-}(C_1\text{-}C_3)\text{-alkyl- or} \\ (C_1\text{-}C_3)\text{-alkoxy-}(C_1\text{-}C_3)\text{-alkoxy-}(C_1\text{-}C_3)\text{-alkyl-;} \\ R^{17} \text{ is } R^{10}, CO_2(C_1\text{-}C_6)\text{-alkyl}, CO_2CH_2R^{18} \text{ or } CO(C_1\text{-}C_6)\text{-alkyl;} \text{ and the other values} \\ \text{are as defined in formula (I).}$
- 3. A compound or a salt thereof as claimed in claim 1 or 2 wherein R¹ is CN.
- 4. A compound or a salt thereof as claimed in claim 1, 2 or 3 wherein R² is Cl.
- 5. A compound or a salt thereof as claimed in any one of claims 1 to 4 wherein R³ is CF₃.
- 6. A compound or a salt thereof as claimed in any one of claims 1 to 5 wherein A is (C_1-C_6) -alkylene; or is (C_1-C_6) -alkylene in which a carbon in the chain is replaced by O, S, SO, SO₂ or NR⁸ with the proviso that the replacing group is not bonded to the adjacent R⁵ or carbonyl group; or is phenyl unsubstituted or substituted by one or

more radicals selected from the group consisting of halogen, (C_1-C_4) -alkyl, (C_1-C_4) -haloalkyl, (C_1-C_4) -alkoxy, CN and NO₂; or is pyridyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_4) -alkyl, (C_1-C_4) -haloalkyl and (C_1-C_4) -alkoxy.

- 7. A compound or a salt thereof as claimed in any one of claims 1 to 6 wherein R^6 is CF_3 .
- 8. A compound or a salt thereof as claimed in any one of claims 1 to 7 wherein R¹ is CN:

R² is Cl;

R³ is CF₃;

W is CR4 and R4 is Cl;

A is (C_1-C_6) -alkylene; or is (C_1-C_6) -alkylene in which a carbon in the chain is replaced by O, S, SO, SO₂ or NR⁸ with the proviso that the replacing group is not bonded to the adjacent R⁵ or carbonyl group; or is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_2) -alkyl, (C_1-C_2) -haloalkyl, (C_1-C_2) -alkoxy, CN and NO₂; or is pyridyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_2) -alkyl, (C_1-C_2) -haloalkyl and (C_1-C_2) -alkoxy;

R⁵ is CONR⁹R¹⁰ or CO₂R¹⁰ when m is 0 or 1; or R⁵ is NR⁹R¹⁷ when m is 1;

 R^6 is (C_1-C_2) -alkyl or (C_1-C_2) -haloalkyl;

 R^7 is hydrogen or (C₁-C₂)-alkyl;

 R^8 is R^9 , CO- R^9 or CO- R^{11} ;

R9 is H or (C1-C6)-alkyl;

 R^{10} is H, (C_1-C_6) -alkyl, (C_1-C_6) -haloalkyl, (C_2-C_6) -alkenyl, (C_2-C_6) -haloalkenyl, (C_3-C_7) -cycloalkyl, (C_1-C_6) -alkyl- (C_3-C_7) -cycloalkyl or $-(CH_2)_qR^{11}$; or

 R^9 and R^{10} together with the attached N atom form a five- or six-membered saturated ring which optionally contains an additional hetero atom in the ring which is selected from O, S and N, the ring being unsubstituted or substituted by one or more radicals selected from the group consisting of halogen and (C_1-C_2) -alkyl;

 R^{11} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C₁-C₂)-alkyl, (C₁-C₂)-haloalkyl, (C₁-C₂)-alkoxy, CN, NO₂, S(O)_pR¹² and NR⁹R¹⁵;

 R^{12} is (C_1-C_2) -alkyl or (C_1-C_2) -haloalkyl;

 R^{15} is H, (C_1-C_2) -alkyl or (C_1-C_2) -haloalkyl;

 R^{17} is R^{10} , $CO_2(C_1-C_2)$ -alkyl, $CO_2CH_2R^{18}$ or $CO(C_1-C_2)$ -alkyl; and

 R^{18} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, (C_1-C_2) -alkyl, (C_1-C_2) -haloalkyl and (C_1-C_2) -alkoxy.

- 9. A process for the preparation of a compound of formula (I) or a salt thereof as defined in any one of claims 1 to 8, which process comprises:
- a) where R¹, R², R³, R⁵, R⁶, R⁷, W, A, m and n are as defined in claim 1, reacting a compound of formula (II):

wherein R^1 , R^2 , R^3 , R^6 , R^7 , W and n are as defined in claim 1, with a compound of formula (III):

wherein R⁵, A and m are as defined in claim 1 and L is a leaving group; or

b) where R¹, R², R³, R⁵, R⁶, W, A, m and n are as defined in claim 1, and R⁷ is as defined in claim 1 with the exclusion of hydrogen, the alkylation or acylation of the corresponding compound of formula (I) in which R⁷ is hydrogen, with a compound of formula (IV):

wherein R⁷ is as defined in claim 1 with the exclusion of hydrogen and L¹ is a leaving group; or

c) where R¹, R², R³, R⁶, R⁷, W, A and n are as defined in claim 1, R⁵ is NR⁹R¹⁰ and m is 1, the nucleophilic substitution of a corresponding compound of formula (V):

wherein R¹, R², R³, R⁶, R⁷, A, W and n are as defined in claim 1, m is 1 and L² is a leaving group, with a compound of formula (VI):

H-NR9R10

(VI)

wherein R9 and R10 are as defined in claim 1; or

d) where R¹, R², R³, R⁵, R⁶, R⁷, W, A, L², m and n are as defined in claim 1, the acylation of a compound of formula (II) with a compound of formula (VII):

(VII)

wherein L2, A and m are as defined in claim 1; or

- e) where R¹, R², R³, R⁵, R⁶, R⁷, W, A and m are as defined in claim 1, and n is 1 or 2, oxidising a corresponding compound in which n is 0 or 1; and
- f) if desired, converting a resulting compound of formula (I) into a pesticidally acceptable salt thereof.
- 10. A pesticidal composition comprising a compound of formula (I) or a pesticidally acceptable salt thereof as defined in any one of claims 1 to 8, in association with a pesticidally acceptable diluent or carrier and/or surface active agent.

- 11. The use of a compound of formula (I) or a salt thereof according to any one of claims 1 to 8 or of a composition according to claim 10, for the preparation of a veterinary medicament.
- 12. The use of a compound of formula (I) or a salt thereof according to any one of claims 1 to 8 or of a composition according to claim 10 for the control of pests.
- 13. A method for the control of pests at a locus which comprises the application of an effctive amount of a compound of formula (I) or a salt thereof according to any one of claims 1 to 8 or of a composition according to claim 10.